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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

AGENCY: National Aeronautics and Space Administration (NASA)

NOTICE: (16-083)

ACTION: Notice of Centennial Challenges 3D-Printed Habitat Challenge Phase 3: On-Site Habitat Competition

SUMMARY: The 3D-Printed Habitat (3DPH) Challenge Phase 3 On-Site Habitat Competition is open, and teams that wish to compete may now register. Centennial Challenges is a program of prize competitions to stimulate innovation in technologies of interest and value to NASA and the nation. The 3DPH Challenge Phase 3 On-Site Habitat Competition is a prize competition with a $2,000,000 total prize purse to develop and demonstrate capabilities to autonomously manufacture through 3D-printing technologies a habitat on another planetary body using mission recycled materials and/or local indigenous materials. The Phase 3 competition consists of 5 levels. This technology demonstration competition has great potential value for terrestrial applications.

DATES: Challenge registration opens November 7, 2017, and will remain open until February 15, 2018. Early and Late registrations are available with discount or late fee respectively.

Competitors will be allowed the option to participate in the Virtual Construction competitions levels 1 & 4 only with a reduced registration fee.

Other important dates:

May 16, 2018	Level 1: Virtual Construction Building Information Modeling (BIM) - 60% Design Results due to Judges
July 11, 2018	Level 2: Foundation Test Results due to Judges
December 5, 2018	Level 3: Hydrostatic Test Results due to Judges

January 16, 2019	Level 4: Virtual Construction BIM - 100% Design Results due to Judges
April 29 – May 4, 2019	Level 5: Subscale Habitat Competition

ADDRESSES: The Level 5 On-Site Subscale Habitat Head-to-Head challenge competition will take place at:

Caterpillar Edwards Demonstration and Learning Center
5801 N. Smith Rd
Edwards, IL 61528

FOR FURTHER INFORMATION: To register for or get additional information regarding the 3D Printed Habitat Challenge, please visit: http://bradley.edu/challenge

For general information on the NASA Centennial Challenges Program please visit: http://www.nasa.gov/challenges. General questions and comments regarding the program should be addressed to Monsi Roman, Centennial Challenges Program, NASA Marshall Space Flight Center Huntsville, AL 35812. Email address: hq-stmd-centennialchallenges@mail.nasa.gov.

SUPPLEMENTARY INFORMATION:

Summary

The 3DPH Challenge Phase 3 Competition (On-Site Habitat) follows earlier phases of the Challenge as described below.

- Design Competition (Phase 1) - focused on developing innovative habitat architectural concepts that take advantage of the unique capabilities that 3D-Printing offers (completed in 2015)
- Structural Member Competition (Phase 2) – focused on the core 3D-Printing fabrication technologies and materials properties needed to manufacture structural components from indigenous materials combined with recyclables, or indigenous materials alone (completed in 2017)

The current competition, Phase 3 (On-Site Habitat), will focus on the technology for autonomous 3D-printing and construction of a complete 1:3 sub-scale habitat (~10 m^2). This competition will involve elements from Phase 1 design and Phase 2 materials to demonstrate the technology for autonomous construction needed for building a habitat on another planet or even on remote locations on Earth.

A Phase 4 competition (Full-Scale Habitat), calling for the development of an autonomous 3D-printed construction of a full-scale habitat (~93 m^2), is planned to be announced at a later date.

I. Prize Amounts

The 3D Printed Habitat Challenge Phase 3 On-Site Habitat Competition purse is $2,000,000 (two million dollars) to be disbursed as follows:

Level 1: Virtual Construction BIM - 60% Design

$100,000 total prize money to be awarded to top 5 qualifiers based on scoring, as articulated in the competition rules.

Level 2: Foundation Test

$400,000 total prize money to be awarded to top 10 qualifiers based on scoring, as articulated in the competition rules.

Level 3: Hydrostatic Test

$600,000 total prize money to be awarded to top 8 qualifiers based on scoring, as articulated in the competition rules.

Level 4: Virtual Construction BIM - 100% Design

$100,000 total prize money to be awarded to top 3 qualifiers based on scoring, as articulated in the competition rules.

Level 5: Subscale Habitat Competition

$500,000 to first place

$200,000 to second place

$100,000 to third place

These awards will be made based on scoring, as articulated in the competition rules.

II. Eligibility

To be eligible to win a prize, competitors must:

1) Register and comply with all requirements in the rules and Team Agreement;

2) In the case of a private entity, shall be incorporated in and maintain a primary place of business in the United States, and in the case of an individual, whether participating singly or in a group, shall be a citizen or permanent resident of the United States; and

3) Not be a Federal entity or Federal employee acting within the scope of their employment.

III. Rules

The complete rules for the 3D-Printed Habitat Challenge Phase 3 competition can be found at:

http://bradley.edu/challenge

This notice is issued in accordance with 51 U.S.C. 20144(c).

Cheryl Parker
NASA Federal Register Liaison Officer
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